



U.S. Fish & Wildlife Service  
Sacramento Fish & Wildlife Office  
Species Account  
GREENE'S TUCTORIA  
*Tuctoria greenei*



**CLASSIFICATION: ENDANGERED**

Federal Register Notice 58:14338; March 26, 1997  
[http://ecos.fws.gov/docs/federal\\_register/fr3057.pdf](http://ecos.fws.gov/docs/federal_register/fr3057.pdf) (125 KB)

**STATE LISTING STATUS AND CNPS CODE**

This species was listed as rare by the California Department of Fish and Game. The California Native Plant Society has placed it on List 1B (rare or endangered throughout its range).

**CRITICAL HABITAT:** Originally designated in Federal Register 68:46683; August 6, 2003.



Greene's Tuctoria  
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The designation was revised in 70:46923; August 11, 2005.

Species by unit designations were published in 71:7117; February 10, 2006.

[www.fws.gov/policy/library/2006/06-1080.html](http://www.fws.gov/policy/library/2006/06-1080.html)  
[www.fws.gov/policy/library/2006/06-1080.pdf](http://www.fws.gov/policy/library/2006/06-1080.pdf) (6.6 MB)

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**RECOVERY PLAN:** Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon; December 15, 2005.

[http://www.fws.gov/sacramento/es/recovery\\_plans/vp\\_recovery\\_plan\\_links.htm](http://www.fws.gov/sacramento/es/recovery_plans/vp_recovery_plan_links.htm)

**5-YEAR REVIEW:** Completed December 2007

[http://ecos.fws.gov/docs/five\\_year\\_review/doc1867.pdf](http://ecos.fws.gov/docs/five_year_review/doc1867.pdf)



Greene's Tuctoria  
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## DESCRIPTION

Greene's tuctoria, which is also known as Greene's Orcutt grass or awnless spiralgrass, is a small, tufted annual in the grass family (Poaceae). The genus *Tuctoria*, which includes the endangered Solano grass (*Tuctoria mucronata*), is distinguished from the closely related Orcutt grasses (*Orcuttia*), several of which are threatened or endangered, by the spiral arrangement of the spikelets (flowers) and other characteristics of its flower parts. (See Orcuttieae Grasses below for more information)

The plant has several to many stems 5 to 15 centimeters (2.0 to 5.9 inches) tall. They are not branched. Each ends in a spike-like inflorescence that may be partly enfolded in the upper leaf. The lemmas (bracts) are strongly curved and more or less truncate at the apex.

Greene's tuctoria has purplish nodes and leaves no wider than 5 millimeters (0.20 inch). The inflorescence can be as much as 8 centimeters (3.1 inches) long. It may be partly hidden by the leaves when young, but is held above the leaves at maturity. The inflorescence usually consists of 7 to 15 spikelets, but may contain as many as 40. The spikelets are arranged in a spiral, with those in the upper half crowded together and those near the base more widely separated.

See Hickman (1993) in General Information about California Plants, below, for a detailed description of the species.

## VERNAL POOLS:

Vernal pools are a unique kind of wetland ecosystem. Central to their distinctive ecology is their ephemeral nature. Vernal pools fill with water temporarily, typically during the winter and spring, and then disappear until the next rainy season.

In California, where extensive areas of vernal pool habitat developed over a long geological timeframe, unique suites of plants and animals have evolved that are specially adapted to the unusual conditions of vernal pools. Fish and other predators are among species that have been excluded evolutionarily by annual filling and drying cycles of vernal pools.

The prolonged annual dry phase of the vernal pool ecosystem also has prevented the establishment of plant species typical of more permanent wetland ecosystems. .

## ORCUTTIEAE GRASSES:

The genera *Orcuttia*, *Neostapfia* and *Tuctoria* form the Orcuttieae tribe. All members of the Orcuttieae tribe share several characteristics that differ from many other grasses. Most grasses have hollow stems, but the Orcuttieae have stems filled with pith (the soft, spongy center found in many plants). Another difference is that the Orcuttieae produce two or three different types of leaves during their life cycle, whereas most grasses have a single leaf type throughout their life span.

The juvenile leaves of the Orcuttieae, which form underwater, are cylindrical and clustered into a basal rosette. After the pool dries, terrestrial leaves form in all species of the tribe. These leaves have flattened blades and are distributed along the stem.

Another characteristic common to all Orcuttieae is the production of an aromatic exudate, which changes from clear to brown during the growing season. The exudate most likely helps to repel herbivores

*Orcuttia* species have a third type of leaf that is not found in *Neostapfia* or *Tuctoria*. The terrestrial leaves of the Orcuttieae also differ from other grasses in other respects. Whereas grass leaves typically are differentiated into a narrow, tubular sheath that clasps the stem tightly and a broader blade that projects away from the stem, terrestrial leaves of the Orcuttieae are broad throughout and the lower portion enfolds the stem only loosely.

## DISTRIBUTION

*Tuctoria greenei* is currently found in widely separated occurrences in Butte, Merced, Shasta and Tehama Counties. Sixty percent of the extant occurrences are in the Vina Plains area of Tehama and Butte Counties. Eastern Merced County has about 30 percent of the known occurrences. Other occurrences are located in Glenn and Shasta Counties. The species seems to have been extirpated from Fresno, Madera, San Joaquin, Stanislaus and Tulare Counties.

The species has been found in three types of vernal pools: Northern Basalt Flow, Northern Claypan and Northern Hardpan, on both low and high terraces. Occupied pools are or were underlain by iron-silica cemented hardpan, tuffaceous alluvium or claypan. Of pools where the species was known to be extant in 1987, the median size was 0.6 hectare (1.5 acres), with a range of 50 square meters (0.01 acre) to 3.4 hectares (8.4 acres).

U.S. Geological Survey 7.5 Minute Quads: Woodlake (333A)\* 3611941, Clovis (378C)\* 3611976, Round Mountain (378D)\* 3611975, Le Grand (400B) 3712022, Kismet (400D)\* 3712011, Owens Reservoir (420C) 3712032, Haystack Mountain (421A) 3712043, Planada (421D) 3712033, Cooperstown (441A)\* 3712065, Paulsell (441B)\* 3712066, Montpelier (441C)\* 3712056, Waterford (442A)\* 3712067, Farmington (460B)\* 3712088, Escalon (460C)\* 3712078, Biggs (560B) 3912146, Logandale (562B) 3912242, Hamlin Canyon (576B) 3912166, Shippee (576C) 3912156, Richardson Springs NW (593B) 3912188, Nord (593C) 3912178, Vina (594A) 3912281, Murken Bench (661C) 4012174, Jellico (661D) 4012173, Donica Mountain (694C) 4112132 (\*Presumed extirpated)

## THREATS

Primary threats include agricultural conversion, inappropriate livestock grazing and urbanization.

Soil disturbance from cattle grazing combined with competition from the introduced annual grasses and other nonnative species appear to adversely affect many of the extant populations. Greene's tuctoria grows in the margins of vernal pools making it susceptible to livestock trampling and competition from nonnative weeds. All remaining populations are subject to grazing. However, grazing can help control invasive species if timed correctly.

One potential factor unique to this and some other vernal pool plant species may be decimation by grasshopper outbreaks. Grasshoppers have been noted consuming entire populations before they set seed

## REFERENCES FOR ADDITIONAL INFORMATION

### **General references about California plants**

[www.fws.gov/sacramento/es/plant\\_spp\\_accts/plant\\_references.htm](http://www.fws.gov/sacramento/es/plant_spp_accts/plant_references.htm)

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